

Amendment to the Claims:

1. (Currently Amended) A method for controlling a drive motor of a positive displacement vacuum pump, the method comprising:

storing a continuous curve indicating a respective speed n of the drive motor for inlet pressure values p , the curve comprising:

5 an upper range for inlet pressure values p larger than or equal to an upper limit pressure p_1 , a single constant upper speed value n_1 being associated with said upper range, and

an alteration range for inlet pressure values p smaller than the upper limit pressure p_1 , at least below the upper limit pressure,
10 each inlet pressure value p being associated with a different corresponding speed value n ;

determining the inlet pressure value p ;

determining from the curve, the speed n associated with the determined inlet pressure value p in the curve; and

15 operating the drive motor at the determined speed n , the determined speed value n being less than or equal to the upper speed value n_1 .

2. (Previously Presented) The method according to claim 1, wherein the curve comprises a lower range for inlet pressure values p smaller than or equal to a lower limit pressure p_2 , a single constant lower speed value n_2 being associated with the lower range, and the alteration range being limited to inlet
5 pressure values p larger than the lower limit pressure p_2 , the upper speed value n_1 being larger than the lower speed value n_2 .

3. (Currently Amended) A method for controlling a drive motor of a positive displacement vacuum pump, the method comprising:

storing a continuous curve indicating a respective speed n of the drive motor for each inlet pressure value p , the curve comprising:

5 a lower range for inlet pressure values p smaller than or equal to a lower limit pressure p_2 , a single constant lower speed value n_2 being associated with said lower range,

- an alteration range for inlet pressure values p larger than the lower limit pressure p_2 , each inlet pressure value p being associated with a different, corresponding speed value n for pressures above the lower limit pressure p_2 ;
- 10 determining the inlet pressure value p ;
- determining from the curve the speed n associated with the determined inlet pressure value p in the curve; and
- 15 operating the drive motor at the determined speed n , the speed n being equal to or greater than the lower speed value n_2 .

4. (Previously Presented) The method according to claim 1, wherein the speed n decreases as the corresponding inlet pressure p decreases in the alteration range.

5. (Previously Presented) The method according to claim 2, wherein the upper limit value p_1 ranges between 20 mbar and 1 mbar, and the lower limit value p_2 ranges between 1.0 mbar and 0.005 mbar.

6. (Previously Presented) The method according to claim 2, wherein the upper constant speed value n_1 ranges between 2,200 and 1,000 rpm, and the lower constant speed value n_2 ranges between 300 and 1,300 rpm.

7. (Previously Presented) The method according to claim 1, wherein the positive displacement vacuum pump is a fore vacuum pump arranged upstream of a high vacuum pump, and the inlet pressure p is a suction-side pressure of the high vacuum pump.

8. (Previously Presented) The method according to claim 1, wherein the curve is saved in a characteristic diagram storage.

9. (Previously Presented) The method according to claim 1, wherein the drive motor is an asynchronous motor.

10-11. (Cancelled)

12. (Previously Presented) The method according to claim 3, wherein in the alteration range, each value of decreasing inlet pressure p is associated with a corresponding decreasing speed value n .

13. (Previously Presented) The method according to claim 3, wherein the positive displacement vacuum pump is a fore vacuum pump arranged upstream of a high vacuum pump, and the inlet pressure p is a suction-side pressure of the high vacuum pump.

14. (Previously Presented) The method according to claim 3, wherein the curve is saved in a characteristic diagram storage.

15. (Previously Presented) The method according to claim 3, wherein the drive motor is an asynchronous motor.

16. (Cancelled)

17. (Previously Presented) A positive displacement vacuum pump system comprising:

a vacuum pump;

a drive motor which drives a rotor of the vacuum pump at an
5 adjustable drive speed n ;

an inlet pressure sensor that senses an inlet pressure p at an inlet of the vacuum pump;

a memory which stores a preselected relationship between the inlet pressure p and the drive speed n , in which relationship the inlet pressure p has an
10 alteration range of operating pressures below an upper-pressure limit p_1 and/or above a lower limit pressure p_2 , where each value of the inlet pressure p has a preselected corresponding drive speed n ,

in said preselected relationship, the inlet pressure p additionally has at least one of an upper range of operating pressures larger than or equal to the upper
15 pressure limit p_1 and a lower range of operating pressures equal to or less than the lower pressure limit p_2 , where:

every inlet pressure p in the upper range has a single
constant upper speed n_1 , and

every inlet pressure p in the lower range has a single constant lower
20 speed n_2 ; and

said system also includes a drive motor control which (1) determines a
currently sensed inlet pressure p from the inlet pressure sensor, (2) determines a
corresponding drive speed n corresponding to the current inlet pressure from the
relationship stored in the memory, and (3) controls the drive motor to rotate the rotor
25 at the determined corresponding drive speed n , the determined drive speed n being
less than or equal to the upper speed value n_1 and greater than or equal to the lower
speed value n_2 .

18-19. (Cancelled)

20. (Previously Presented) The positive displacement pump
system according to claim 17, wherein the relationship between the inlet pressure p
and the drive speed n is a continuous curve.

21, (New) The positive displacement pump system according to
claim 17, wherein in the alteration range, each inlet pressure p corresponds to a
different drive speed n .